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Digital Transformation of the Russian Economy: State Regulation, Industry Specifics, and Problems

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Abstract: The research aims to show the impact of the sanctions of unfriendly countries on the digitalization of the Russian economy. The research is based on statistical and content analysis of information from official sources, such as the Federal State Statistics Service of the Russian Federation, Federal Service for Intellectual Property (Rospatent), government documents, and Internet resources. The research notes that the process of digitalization of the Russian economy is uneven. Digitalization is developing most rapidly in sectors such as transportation, finance, and banking. Despite the sanctions of unfriendly countries, the digitalization process is actively developing. Global challenges have become a catalyst for the development of science, innovation, and invention in Russia. This is evidenced by the improvement of Russia's positions in the main international ratings of digital development. To promote digitalization processes, the country actively improves the institutional environment, supports digital initiatives of leading companies in all sectors of the economy, and constantly monitors the results of the digital maturity of society.

Keywords: digitalization, digital technologies, information society, digital transformation

JEL codes: O32, O33, M15

The introduction of digital technologies into human activity is a distinctive feature of the contemporary national economy, which determines its competitiveness in the world economy. Digital technologies have literally burst into all areas of human activity and transformed the

human environment. The global digital economy is driven by the spread of new information and communication technologies that can accelerate the flow of business processes and their development, marking the emergence of Industry 4.0.

Methodology

Digitalization is an objective process determined by the entire course of the civilization's development. The positive aspects of this process are apparent. Thus, creating conditions for systemic digital transformation has become a central task of public policy in many countries. Russia has created and is constantly improving the institutional conditions for implementing digital transformation. To this end, the country adopted relevant legal acts and developed programs and strategies.

The information base for this research on digital transformation includes the data of the Federal State Statistics Service of the Russian Federation (Rosstat) and Internet resources. The authors applied methods of statistical and content analysis.

Results and Discussion

According to experts, the global digital economy is growing 2.5 times faster than the global GDP, changing the landscape of world economic development. Digitalization is a reality for nearly 180 countries. At least 50 countries involve artificial intelligence strategies in digital transformation (Levchuk, 2021).

In the digital economy, the main production factor is digital data, which increases the efficiency of individual sectors of the economy. Russia lags far behind most developed countries in this indicator (Presidential Executive Office, 2020).

The reasons for this are the peculiarities of the Russian Federation's business climate, the regulatory framework's imperfection, and the low level of application and use of innovations in production and business processes. The share of the digital economy in the country's total GDP is approximately 4%. This indicator has approximately doubled compared to 2015.

In March 2023, the Polilog agency conducted a study of the state of digitalization of state data in federal authorities (15 state structures participated). It revealed a different degree of digitalization among ministries and departments: two-thirds of the respondents stated that at least 70% of the data in their department was digitized, and 17% of the respondents claimed that no more than 30% of the data in their area of work was digitized (Petrova & Sapozhkov, 2023).

According to the participants, the main problems in digitization are the lack of motivation (46% of respondents) and competition for control over data – maintaining the array simultaneously by several departments (24%) and several units within the department (33%). However, the main incentive for the majority of employees was legislative requirements (74%) (Petrova & Sapozhkov, 2023).

In March 2023, a special legal regime was created in the Samara Region to launch the creation and production of cargo drones. Regional authorities intend to use drones in all sectors of the economy, including transport, agriculture, and others. Within the framework of a special

legal regime, it will be possible to conduct flight tests for the delivery of medicines, products, and other cargo over the Volga water area and along other dedicated transport corridors, as well as monitoring and processing of agricultural land (Tadviser, 2023a).

The creation of special legal experimental regimes was the result of 11 developed main directions of digitalization, which were adopted by the government until 2030 (Rudnik, 2022).

Although the specifics of the digital transformation of such various industries are apparent, their strategies involve using a similar technological base based on the introduction of artificial intelligence (AI), big data, and wireless systems. Digital transformation of the Russian economy requires platform and ecosystem solutions, information and communication transformation solutions in the field of public services, etc. (Rudnik, 2022).

The interaction between the elements of the digital ecosystem is carried out based on data exchange; it is fast and reliable due to its distributed architecture.

Let us turn to analyzing the digital transformation process of individual economic sectors. The transport industry occupies a special place in the economy of any country, and even more so in such a large country as Russia. Transport provides communication between all regions, acts as the primary means of national security, and ensures the further development of society. The transport system is an intersectoral complex that transports goods and passengers, ensures the territorial connectivity of the country, stimulates entrepreneurial activity, and accelerates the territory's socio-economic development.

Currently, digital technologies are being actively introduced into the transport industry, which makes it possible to increase its efficiency.

The use of digital technologies in the transport industry is aimed primarily at the following aspects:

- Improving the quality and safety of transportation within the country and in international transportation;
- Creation of a national digital platform to optimize traffic flows;
- Ensuring transparency of information flows of state control bodies in the field of transport;
- Implementation of information systems and information management systems for transport companies;
- Improving the environmental friendliness of transport (Digital Russia, 2021).

To achieve these goals, it is necessary to solve several problems in the field of transport infrastructure development, technological renewal of transport units, optimization of transport network management, and decarbonization of transport, which are of a complex nature.

To solve problems in the transport industry, projects such as "UAVs for passengers and cargo," "Unmanned logistics corridors," "Autonomous navigation," and several others are being implemented (Government of the Russian Federation, 2021).

Russian transport complex faces several problems. The first problem is the lack of a unified management system for the transport complex, high susceptibility to accidents (the

result of the human factor), high transaction costs of transport corridors, risks of deterioration of transport infrastructure facilities, low mobility of the population, and others. The development of transport digitalization projects is aimed at solving these problems (Government of the Russian Federation, 2021).

According to experts, the transport industry ranks 10th out of 18 possible by the level of digitalization (the highest value in the IT industry, the minimum falls on real estate transactions).

Introducing digital technologies in transport is slow due to the lack of specialized human and financial resources (Rudycheva, 2023).

Since the industry consists of several segments, their development priorities will differ. The digitalization of air transport aims to improve the efficiency of air corridor management, optimize air traffic costs, timely track the need for maintenance and repair of aircraft, etc. For road transport management, attention is directed to the use of AI to optimize traffic, the introduction of uncrewed vehicles, etc. In the field of railway transport, the most popular are rolling stock tokenizations based on distributed registry technologies and business process automation. For maritime transport, it is important to create databases containing ships' passports, etc. In passenger transportation, it is extremely important to create high-speed trains. The use of digital technologies in sea and river transport is associated with the use of AI, which makes it possible to speed up the processing of the necessary information, make quick decisions based on it, and optimize supply management and logistics (Rudnik, 2022).

It is assumed that the demand for digital technologies in the field of transport and logistics will grow by 21% annually. By 2030, they are projected to reach 626.6 billion roubles (in 2020, it was estimated at 89.4 billion rubles) (Rudycheva, 2023).

Another important area of activity in any economic system is the financial sector, where, by all indicators, the digital transformation process is particularly active.

The country’s financial sector is a kind of circulatory system that ensures the implementation of expanded reproduction. It is used to regulate economic and social processes and solve the tasks of the effective use of available economic resources.

The COVID-19 pandemic has significantly accelerated the process of digitalization in the financial sector, which has led to the rapid spread of mobile banking, electronic payments, and portfolio investment. The latest digital technologies have made it possible to increase the number of financial transactions and the speed of their flow. Moreover, they have contributed to the involvement of an increasing number of economic entities in transactions in the financial markets.

Currently, digital technologies are most widely used in the financial and credit sector (41% of organizations use digital). Digital platforms are used by 36.3% of enterprises; 26% of organizations actively use geographic information systems; artificial intelligence systems are in demand in 22.8% of organizations; and big data analysis is used by 16.4% of business entities. An automatic contactless method of identifying objects by radio signal (used by 11.8%

of organizations) and the Internet of Things (used by 10.8% of business units) are also in demand (Rudycheva, 2023).

The country's main directions of digital transformation are being developed by the Central Bank of Russia, together with the largest participants in the financial market. Thus, in 2021, the Bank of Russia began developing legal conditions for digitalizing banking activities. Considerable attention is paid to such developments as the digital profile of a citizen, the development of regulation in the field of circulation of anonymized personal data, the development of the Unified Biometric System, the development and piloting of the digital ruble platform, the development of alternative mechanisms for international settlements, the use of a fast payment system (SBP) in cross-border transfers, and the introduction of open interfaces (Open API) (Rudycheva, 2023). In 2023, digital banking is planned to transition from personal transactions to fully digital services on a range of new devices. These initiatives are in line with global trends in the financial sector.

The Central Bank of Russia identified the following priorities:

- Switching to the currencies of friendly countries in international settlements in export and import operations;
- Easing exchange controls in response to their easing of sanctions;
- Benefits for banks on blocked assets;
- A unified approach to determining tax incentives for long-term investments;
- Simplification of the mechanism for granting consortium loans for investment purposes;
- Distribution of account insurance to those organizations that carry out socially significant projects;
- Development of a system of fast payments with banks of friendly countries;
- Continuation of work with partners to preserve the infrastructure for accepting Mir cards abroad and search for alternative solutions;
- Consideration of the possibility of increasing the number of participants in the Financial Message Transmission System (SPFS) to 18 in 2023 by connecting foreign partners of Russian organizations and expanding its use through the "service bureau" mechanism (Vakhitova, 2022), etc.

Russian developers started gaining a foothold in the vacant market niches and developing new ones, offering analogs to Western solutions. Most state corporations, public authorities, and small and medium-sized businesses are transferring their IT infrastructure to Russian software. Moreover, from January 1, 2025, there is a strict ban on using foreign software products at their facilities for state authorities and state-owned enterprises.

An expert assessment of the digital technology market, carried out by the CNews Analytics agency, states that solutions in the field of cloud services, systems using AI, and cybersecurity will be the most popular Russian business structures in 2023 (Melnikova, 2023). In 2022, the information security segment showed an increase of 20%; in 2023, it is expected to be at least 30%.

However, grey imports of foreign software are holding back Russian manufacturers. The government is forced to continue to ignore the violation of intellectual rights when using foreign software that has no Russian analogs. Although the register of Russian software for 2022 has expanded and the first official marketplace has appeared, the shortage of digital solutions is at least 50%. Simultaneously, experts believe that the main risk lies in the slow pace of creating a developed Russian software market. For this reason, the authorities will monitor and punish violators of the rights of domestic copyright holders. The government fully supports and will help develop the domestic IT market through legislative initiatives and increasing public procurement (Lessar, 2023).

The following actions are taken to stimulate digital solutions developed in Russia:

- 33 industrial competence centers were created in the country, bringing together more than 300 organizations;
- Niches and areas dominated by foreign software have been identified;
- A list of projects that contribute to the transition of industries to the use of domestic software has been compiled.

These are 100 projects worth more than 140 billion rubles (the volume of private investment from them is more than 90 billion rubles) (Kovalenko, 2022).

In 2022, almost 27 thousand applications for inventions were submitted to the Federal Service for Intellectual Property (Rospatent), 70% of which are Russian. For three years in a row, software registration has grown by 20%. In 2022, 31000 applications were submitted, almost all of which were Russian (Tadviser, 2023b).

Rospatent is conducting an experiment to support large innovative projects in digital technologies for the early identification of solutions that can be successfully commercialized. To make informed decisions, Rospatent uses a search platform that aggregates the entire array of global patent information (i.e., more than 158 million units) and uses 3D technologies to improve the examination of the proposed solutions (Petrova, 2022).

From 2023, Rospatent is opening the state registration system “Rospatent Online” to place the entire pool of services in the digital space. It is planned to launch three pilot services in a new digital format:

- Registration of computer programs and databases;
- Registration of trademarks and inventions;
- A service that warns the applicant in advance about the expiration of a law enforcement document (Petrova, 2022).

Conclusions

Despite all the force majeure circumstances of recent years, the digital transformation of all sectors of the economy and areas of activity in Russia continues. Global challenges have become a catalyst for the development of science, innovation, and invention in Russia. This is evidenced by the improvement of Russia’s positions in the main international ratings of digital development.

To promote digitalization processes, the country actively improves the institutional environment, supports digital initiatives of leading companies, and constantly monitors the results obtained and the digital maturity of society.

There are serious barriers to digital transformation. However, public authorities at all levels, with the support of stakeholders, are steadily promoting the most important initiatives in the field of digital transformation.

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